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subject, but particularly those of Bremner, Lænnec, and Owen, by which acephalocystic reproduction is referred to imperfect ovation or generation. Dr. Kennedy went on to show that the uterine hydatid or hydrometra hydatica of Wiesmantel, which should more correctly be termed the "Acephalocystis Hysterobia vel uterina," multiplies by *fissiparous generation*, and that the creatures still continue adherent to, or connected with each other by filiform bands or elongations of the strictured parts of their bodies. Dr. Kennedy exhibited several preparations and drawings in which this mode of reproduction by subdivision was perceptible in different stages of progress, and having alluded to an imperfect division, observed also to occur in infusorial animalcules, recommended that the system of reproduction which he described should be termed "fissiparo-coherent."

A paper "on the colouring Matters of the Persian Berries" was read by Dr. Kane.

These berries, the fruit of the dyer's buckthorn, *Rhamnus Tinctoria*, are imported from the Levant, and from the south of France, for the use of dyers, to whom they furnish a yellow colour of great brilliancy, though not so permanent as some others. The appearance of the berries, as found in commerce, varies considerably; some samples, and those the most valuable, being larger, fuller, and of a light greenish olive colour, whilst others are smaller, as if shrivelled, and dark brown in tint. The former Dr. Kane considers to have the appearance of being gathered before complete ripening, whilst the latter owe their altered character to being allowed to remain longer on the stem, or to having been incautiously dried.

The colouring matter in these two kinds is essentially different. The unripe berries yield but little colour to pure water, and when digested in ether give abundance of a rich golden yellow substance, to which Dr. Kane has given the name of *chrysorhamnine*. The dark coloured berries contain little of the substance soluble in ether, but give out to boiling water an olive yellow material, to which, in its pure form, Dr. Kane gives the name of *xanthorhamnine*. This substance is produced, however, only by the decomposition of the former; thus, if the unripe berries be boiled for a few minutes in water, they, when dried, yield to ether scarcely traces of *chrysorhamnine*, this principle being, by contact of air and hot water, changed into *xanthorhamnine*.

Omitting the details of methods of purification, and of analysis, the properties and composition of these bodies may be expressed as follows :

Chrysorhamnine is of a rich golden yellow colour, of a crystalline aspect, and may be obtained in brilliant stellated tufts of short silky needles. It is but very sparingly soluble in cold water, and when boiled with water the portion which dissolves does not separate on cooling, but is found to be changed into xanthorhamnine. It dissolves in alcohol, but is not obtained by its evaporation, without being much altered. In ether, however, it dissolves abundantly, and by the spontaneous evaporation of its solution is deposited in a pure form. It has no acid reaction, but dissolves in alkaline solutions, in which, however, it appears also to be mostly altered.

Dried at 212° Fahr. it consisted of

	I.	II.
Carbon	58.23	57.81
Hydrogen . . .	4.77	4.64
Oxygen	37.00	37.55
	100.00	100.00

These numbers give the formula $C_{23}\ H_{11}\ O_{11}$, by which there should be

C_{23}	=	138	58.23
H_{11}	=	11	4.64
O_{11}	=	88	37.13
		237	100.00

On adding an alcoholic solution of chrysorhamnine to a solution of acetate of lead, a rich yellow precipitate is formed, which, when dried at 212°, was found to be expressed by the formula $C_{23}\ H_{11}\ O_{11} + 2\ PbO$, the numbers being as follow :

	Theory.		Experiment.
Carbon	138.0	29.98 . . .	29.62
Hydrogen . . .	11.0	2.39 . . .	2.19
Oxygen	88.0	19.11 . . .	19.59
Oxide of lead . .	223.4	48.52 . . .	48.60
	460.4	100.00	100.00

A little water appears to have been lost in the analysis, which, however, does not affect the formula deduced.

By the decomposition of a more basic acetate of lead, a yellow precipitate is obtained, which consisted of one equivalent of chrysorhamnine united to three equivalents of oxide of lead.

The chrysorhamnine may be easily observed in its natural state of deposition in the berry; it lines the interior of the capsule-cells, with a brilliant resinous-looking pale yellow, and semitransparent coating.

Xanthorhamnine is formed by boiling chrysorhamnine in water, in a capsule, so as to admit of free access of air. It dissolves with an olive, yellow colour, and on evaporating to dryness, remains as a dark, extractive looking mass, quite insoluble in ether, but abundantly soluble in alcohol and water. It may be procured also from the berries, without previous separation of the chrysorhamnine, by similar treatment, but it is then rendered impure by a gummy substance being mixed with it. It is very difficult to determine when this substance can be considered anhydrous. Prepared by evaporation over sulphuric acid in vacuo, it is quite dry, and may be powdered, but if heated it liquefies below 212°, and continues giving out watery vapour until the temperature is raised to 350°, beyond which the organic matter itself cannot be heated without decomposition. On cooling it reassumes its perfectly dry aspect, and may be easily powdered.

It was hence analyzed in all these stages of desiccation, with the following results. It contained:

Dried in vacuo.		Formula deduced.			
Carbon	34.74	C_{23}	=	138	34.78
Hydrogen . . .	6.93	H_{27}	=	27	6.80
Oxygen	58.33	O_{29}	=	232	58.42
	100.00			397	100.00

Dried at 212°.			Formula deduced.			
Carbon . .	49.97	51.20	C_{23}	=	138	50.92
Hydrogen .	5.18	5.28	H_{13}	=	13	4.80
Oxygen .	44.85	43.52	O_{15}	=	120	44.28
	100.00	100.00			271	100.00

Dried in an oil bath at 320°.		Formula deduced.			
Carbon	52.55	C_{23}	=	138	52.67
Hydrogen . . .	5.15	H_{12}	=	12	4.58
Oxygen	42.30	O_{14}	=	112	42.75
	100.00			262	100.00

By adding a solution of xanthorhamnine to solutions of acetate of lead, two combinations may be formed, one by neutral acetate of lead, the other by using the tribasic salt. But it is difficult to obtain either unmixed with some traces of the other, and thence the analysis of both vary a little from the true atomic constitution. Thus the tribasic salt gives

Dried at 212°.			Formula deduced.		
Carbon . .	26.58		C_{23} =	138.0	26.93
Hydrogen .	2.86		H_{15} =	15.0	2.93
Oxygen . .	25.97		O_{17} =	136.0	26.54
Oxide of lead	45.36	44.59	2.PbO =	223.4	43.60
	100.00			512.4	100.00

The tribasic salt gives

Dried at 212°.			Formula deduced.		
Carbon . .	21.89	22.07	C_{23} =	138.0	21.20
Hydrogen .	3.06	2.82	H_1 =	18.0	2.76
Oxygen .	23.75	23.73	O_{20} =	160.0	24.57
Oxide of lead	52.30	51.38	3.PbO =	335.1	51.47
	100.00	100.00		651.1	100.00

If we consider the xanthorhamnine, as dried in the oil-bath, to be then anhydrous, the bodies analyzed become

Xanthorhamnine, dry = $C_{23} H_{12} O_{14}$.
do. dried at 212°. = $C_{23} H_{12} O_{14} + Aq$.
do. dried in vacuo = $C_{23} H_{12} O_{14} + 15 Aq$.

1st lead salt, $C_{23} H_{12} O_{14} + 2.PbO + 3 Aq$.
2nd lead salt, $C_{23} H_{12} O_{14} + 3 PbO + 6 Aq$.

The xanthorhamnine is thus formed by the addition of one equivalent of water and two of oxygen to the chrysorhamnine, as $C_{23} H_{11} O_{11} + HO + O_2 = C_{23} H_{12} O_{14}$. And if we were to consider the substance dried in the oil-bath at 320° still to retain an atom of water, it should be simply oxidated chrysorhamnine, being, when dry,

$$C_{23} H_{11} O_{11} + 2 O.$$

The Rev. H. Lloyd, V. P., read a supplement to a former communication "on a New Magnetical Instrument, for the measurement of the Inclination and its Changes."